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Use of Death Certificates for Surveillance of Work-Related Illnesses — New Hampshire

To conduct surveillance for occupationally related health events, some state health departments have made innovative use of the limited data sources available to them locally (e.g., death certificates, workers' compensation claims, hospital discharge files) (*1*). The New Hampshire Division of Public Health Services (NHDPHS) of the State Department of Health and Human Services recently completed a study of death certificates in the state for 1963-1983 to epidemiologically characterize deaths due to mesothelioma and the pneumoconioses (silicosis, asbestosis, and anthracosis).

Death certificates were provided by New Hampshire's Bureau of Vital Health Statistics for 1963-1983 and were reviewed to obtain information on all deaths for which mesothelioma or a pneumoconiosis was recorded as the underlying or contributing cause of death. Information was abstracted from these certificates on sex, occupation, age at death, year of death, and usual place of residence. Data were analyzed to estimate the prevalence of these conditions, to determine the demographic characteristics of the cases, and to describe the geographic distribution of these conditions within New Hampshire (Figure 1).

Mesothelioma was recorded on 13 death certificates, nine for males (average age at death: 65 years) and four for females (average age at death: 69 years). In eight cases, the mesotheliomas were pleural in origin; five occurred in the abdominal cavity. The average length of survival following diagnosis was 10 months for males and 4 months for females. For seven of the cases, occupational exposure to asbestos was likely to have occurred. The remaining cases occurred among persons whose primary occupations at time of death were recorded as housewives, a lawyer, and an insurance broker.

Silicosis was recorded as a cause of death on 22 death certificates (average age at death: 70 years); three of these were silicotuberculosis. All cases involved males employed in industries associated with a potential for exposure to silica dust.

Asbestosis was listed for nine deaths as the cause of death (average age at death: 74 years). The eight male workers were employed in trades with a potential for asbestos exposure; the female was identified as a housewife. Deaths associated with asbestos exposure (both mesothelioma and asbestosis) were clustered in geographic areas where the industrial use of asbestos is known to have occurred (Figure 1).

Anthracosis (i.e., coal workers' pneumoconiosis) was recorded as the cause of death for a coal miner and a crane operator. The death of one worker who was involved in the manufacture of woven belts was attributed to byssinosis (not usually classified as a pneumoconiosis), and three deaths were listed as "pneumoconiosis-unspecified."

An additional 218 death certificates indicated pulmonary fibrosis or interstitial fibrosis as a cause of death. Of these, 39 involved occupations with a high probability of past exposure to

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silica or asbestos (e.g., construction, shipbuilding, and manufacturing). Of the remainder, 15 cases involved work in the shoe or leather trades; 11 worked with wood or paper products; six were farmers; four worked with textiles; and four were painters; the remainder were unspecified.

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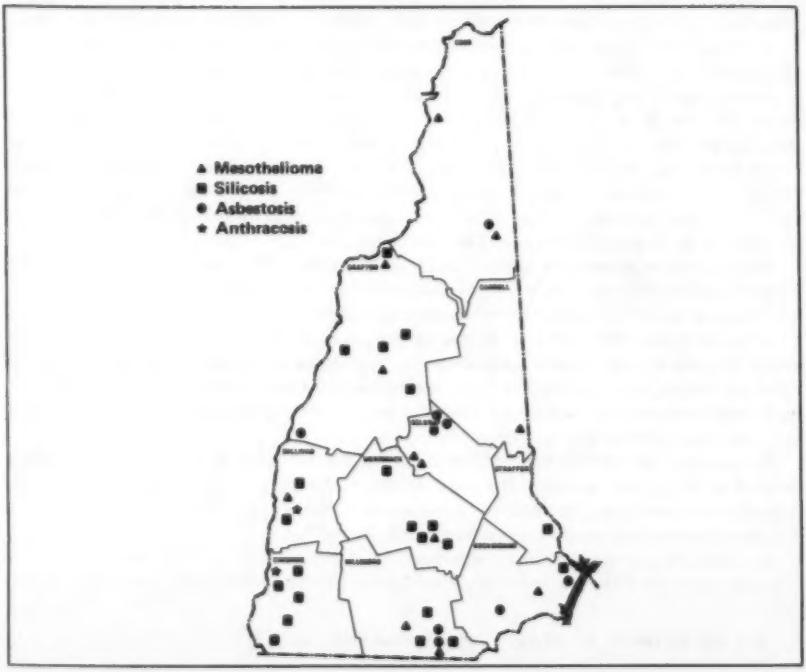
Editorial Note: NHDPHS elected to study deaths associated with mesothelioma and the pneumoconioses because these diseases are considered sentinel health events (occupational) (SHE[O]). A sentinel health event is defined as a preventable disease, disability, or untimely death, the occurrence of which serves as a warning signal that the quality of preventive activities and/or therapeutic medical care may need to be improved (*2*); a SHE(O) is an occupationally related sentinel disease. Mesothelioma and the pneumoconioses were specifically targeted for this study because: (1) the relationship is clearly established between these health conditions and exposure to dusts (e.g., asbestos, silica, coal) encountered in the workplace or general environment; and (2) recognition of a single case of these diseases justifies a careful search for other cases and raises important questions about their occurrence and the prevention of additional cases.

Mesothelioma is a tumor arising from the pleura or the peritoneum. A strong relationship has been established between the occurrence of mesothelioma and previous exposure to asbestos dust (*3*) among exposed workers, family contacts of asbestos-exposed workers, and

FIGURE 1. Death-certificate surveillance of selected work-related mortality — New Hampshire, 1963-1983



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persons incidentally exposed to airborne asbestos at work or from waste dumps, factories, construction sites, and automobile- or truck-brake linings. As with most chemically induced cancers, the latency period between the time of first exposure to asbestos and the clinical detection of mesothelioma is usually 20 years or more.

The pneumoconioses result from the inhalation and accumulation of dust in the lungs or from the reaction of the tissues to its presence (*4*). Although the inhalation of house dusts and most other dusts does not result in pneumoconiosis, the inhalation over long periods of time of silica, asbestos, and coal dust may result in pulmonary fibrosis. A pneumoconiosis may be suspected from the patient's occupational and medical history and is often diagnosed with the aid of chest radiographs and pulmonary-function tests.

For several reasons, this death certificate-based survey may have underestimated the magnitude of mortality associated with exposure to fibrogenic dusts. First, the long latency period usually associated with these diseases often hinders determination of their relationship to work. Accurate diagnosis requires that physicians consider the possible occupational or environmental origins of disease. A practical and systematic approach to such diagnoses has been devised (*5*). A key element is the occupational history, which should include details on various jobs held and information on chemical or physical exposures encountered during a patient's working lifetime (*6*). Second, because the clinical presentations of occupationally and nonoccupationally related diseases are often similar, it is not always clear whether certain diseases result from occupational exposure. Third, other potentially asbestos-related cancers (e.g., oropharyngeal, gastrointestinal, lung, or renal cancer) were not included in this survey. Fourth, because death certificates provide limited information on the decedent's occupational history, associations with specific occupations could not be determined for many of the cases. For example, approximately 10% of the death certificates listing pulmonary fibrosis or interstitial fibrosis as a cause of death also list occupation as "retired" or "at home." Fifth, based on the limited clinical and historic information on the death certificates, it is difficult to determine which cases of pulmonary fibrosis or interstitial fibrosis should be diagnosed as pneumoconioses. For the purposes of epidemiologic analysis, a pneumoconiosis was assumed if occupational information indicated exposure to asbestos or silica.

Investigation and follow-up of these sentinel health events may provide improved opportunity for prevention. Effective prevention of future pneumoconiosis and mesothelioma cases depends on: (1) recognition of work places where hazardous exposures are now occurring; (2) substitution of less hazardous substances for hazardous materials; (3) use of appropriate engineering controls, including local exhaust ventilation; (4) implementation of safe work practices; and (5) use of personal protective devices, such as respirators.

Effective surveillance and prevention depend on prompt reporting of pertinent diagnoses by those in the health-care community. Although in New Hampshire practicing health-care providers are required to report all cases of occupationally related disease to the state's Division of Public Health Services (*7*), relatively few cases are ever actually reported. It is essential, therefore, that health-care providers consider the potential occupational or environmental relatedness of diseases and report these diseases in conformance with reporting requirements.

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Human T-Lymphotropic Virus Type III/ Lymphadenopathy-Associated Virus:

Agent Summary Statement

INTRODUCTION

In March 1984, CDC and the National Institutes of Health (NIH), in consultation with scientists, physicians, and public health workers in academia, industry, and government, published a manual entitled *Biosafety in Microbiological and Biomedical Laboratories* ("biosafety manual")* (*1*). The manual describes combinations of standard and special microbiologic practices, safety equipment, and facilities recommended for working with infectious agents in various laboratory settings. The recommendations are advisory and provide a voluntary code of safety practices.

A section of this manual is devoted to a number of specific "agent summary statements" consisting of brief descriptions of documented or anecdotal laboratory-associated infections, the nature of the laboratory hazards, and recommended precautions to be taken in handling and working with certain infectious agents. Contributors to the manual recognized that new agents would be discovered from time to time and recommended that a summary statement for each new agent be developed and published in the *MMWR*. The summary statement for human T-lymphotropic virus type III/lymphodenopathy-associated virus (HTLV-III/LAV)† follows. All laboratory directors are requested to put a copy of this summary in each of their copies of the biosafety manual and bring it to the attention of laboratory personnel. The recommendations in the summary statement were compiled from published scientific reports and are consistent with the published guidelines for health-care workers (*2-4*).

AGENT SUMMARY STATEMENT: HTLV-III/LAV

As of August 15, 1986, no cases of acquired immunodeficiency syndrome (AIDS) that meet the CDC case definition and can be attributed to an inadvertent laboratory exposure have been reported in laboratory workers (*5*). One laboratory worker (*7*) was included among the health-care workers who have had HTLV-III/LAV antibody detected in their serum after sustaining a needlestick injury (*2,3,6-10*), but the source of the infection could not be established. Persons who are infected with HTLV-III/LAV may be asymptomatic, may have AIDS-related complex, or may manifest symptoms of overt AIDS (*11*).

In 1985, two different reagent production laboratories reported that several laboratory workers may have been inadvertently exposed to an aerosol of concentrated HTLV-III/LAV; one worker was cut by a piece of glass from a broken carboy that contained HTLV-III/LAV-infected cells and culture fluid. None of the potentially exposed persons had shown evidence of seroconversion after 6 months in one incident and 12 months in the other as a result of these occupational exposures.

Other reports dealing with HTLV-III/LAV infection in health-care personnel, including

*Available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, Stock #01702300167-1, Price: $4.00; and from National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, Stock #PB84-206879, Price: $6.00.

†The Human Retrovirus Subcommittee of the International Committee on the Taxonomy of Viruses has proposed the name human immunodeficiency virus (HIV) for these viruses (Science 1986;232:697).

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laboratory workers (*3,4,6,8-10*), indicate that the risk of bloodborne transmission from inadvertent exposure is considerably less for HTLV-III/LAV than for hepatitis B virus infection. These reports illustrate the need for complete evaluation by a physician and serologic testing of each laboratory worker definitely or possibly exposed to HTLV-III/LAV in a laboratory setting. It is recommended that the Public Health Service guidelines for health-care workers be followed in these instances (*2,3*).

Laboratory Hazards

HTLV-III/LAV has been isolated from blood, semen, saliva, tears, urine, cerebrospinal fluid, brain tissue, and cervical secretions and is likely to be present in other body fluids, secretions, and tissues of infected humans or experimentally infected nonhuman primates. Percutaneous or parenteral inoculation and direct contact of cuts, scratches, abrasions, or mucosal surfaces with suspensions of virus or specimens containing live virus are considered potential routes of infection. Possible transmission of infection via the parenteral route can occur through self-inoculation with needles, broken glass, or other sharp objects that contain HTLV-III/LAV. Spillage is a possible means of exposure and infection, especially spills accompanied by spraying or splashing of infected cell cultures, viral concentrates, and other infectious materials that may come into direct contact with abraded skin or mucous membranes of the eyes, nose, or mouth; however, there are no data documenting or suggesting that transmission of HTLV-III/LAV has occurred in this manner. Ingestion and inhalation have not been documented as modes of transmission of the virus.

Recommended Precautions

1. Biosafety Level (BSL) 2 standards and special practices, containment equipment, and facilities as described in the CDC-NIH biosafety manual are recommended for activities involving clinical specimens, body fluids, or tissues from humans or laboratory animals that may contain HTLV-III/LAV. *These are the same practices recommended for all clinical specimens.* Emphasis is placed on the following practices, which are included in the manual (*1*):
   a. Use of syringes, needles and other sharp instruments should be avoided if possible. Used needles and cutting instruments should be discarded into a puncture-resistant container with a lid. Needles should *not* be resheathed, purposefully bent, broken, removed from disposable syringes, or otherwise manipulated by hand.
   b. Gloves should be worn by all personnel engaged in activities that may involve skin contact with potentially infectious fluids, tissues, or cultures and by laboratory workers with dermatitis or other lesions on the hands who may have direct or indirect contact with potentially infectious materials. Handwashing with soap and water should be a routine practice immediately after direct contact with potentially infectious materials and on completion of work, even when gloves are worn.
   c. Generation of aerosols, splashes, and spills of potentially infectious materials should be avoided in procedures involving body fluids or tissues, during necropsy of cadavers, and in similar procedures on animals experimentally infected with HTLV-III/LAV. Laboratory workers should use a biological safety cabinet when propagating the virus to further reduce the risk of exposure. Although the major precautions are listed here, the CDC-NIH biosafety manual contains additional related precautions (see pages 11-13 for BSL 2 and pages 14-17 [*1*] for BSL 3 when large volumes or concentrates of HTLV-III/LAV are involved). In all instances, the laboratory director is responsible for assessing the biosafety level to be used.
   d. Human serum from any source that is used as a control or reagent in a test procedure should be handled at BSL 2 (see pages 11-13 [*1*]). Appended to this Agent Summary Statement is a statement (Addendum 1) issued by CDC on the use of all human control or reagent sera shipped to other laboratories. The Food and Drug Administration re-

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quires that manufacturers of human serum reagents use a similarly worded statement.

e. Animal BSL 2 practices, containment equipment, and facilities are recommended for activities involving nonhuman primates experimentally infected with HTLV-III/LAV. Laboratory coats, gowns, or uniforms should be worn by laboratory workers, as is customary for other BSL 2 or 3 practices, depending on the nature of the work, concentration of the virus, and volume of material being handled. Because many animals bite, and some throw feces, urine, or expectorate at humans, animal-care personnel must wear coats, protective gloves, coveralls or uniforms, and face shields as appropriate to protect the skin and mucous membranes of the eyes, nose, and mouth from potential exposure to these substances when working with animals likely to manifest such behavior.

2. Activities such as growing research-laboratory-scale amounts of HTLV-III/LAV or related viruses or virus-producing cell lines, working with concentrated virus preparations, or conducting procedures that may produce droplets or aerosols should be performed in a BSL 2 facility with the additional practices and containment equipment recommended for BSL 3 (*12*).
3. Activities involving industrial-scale, large-volume, or high-concentration production and manipulation of HTLV-III/LAV are to be conducted with BSL 3 requirements (*12*).

(Continued on page 547)

TABLE I. Summary—cases specified notifiable diseases, United States

Disease	34th Week Ending			Cumulative, 34th Week Ending		
	Aug. 23, 1986	Aug. 24, 1985	Median 1981-1985	Aug. 23, 1986	Aug. 24, 1985	Median 1981-1985
Acquired Immunodeficiency Syndrome (AIDS)	178	138	N	8,113	4,955	N
Aseptic meningitis	545	400	400	5,116	4,641	4,641
Encephalitis: Primary (arthropod-borne & unspec.)	39	40	43	622	696	748
Post-infectious	-	2	1	88	89	85
Gonorrhea: Civilian	17,513	18,254	19,263	563,987	568,921	581,109
Military	368	498	431	10,813	13,794	15,863
Hepatitis: Type A	375	450	429	13,995	14,095	14,095
Type B	524	527	480	16,728	16,485	15,407
Non A, Non B	84	90	N	2,299	2,884	N
Unspecified	57	110	129	2,994	3,715	4,662
Legionellosis	15	13	N	412	464	N
Leprosy	6	7	2	175	257	163
Malaria	22	21	21	642	662	662
Measles: Total*	64	32	17	5,186	2,332	2,215
Indigenous	64	27	N	4,951	1,957	N
Imported	-	5	N	235	375	N
Meningococcal infections: Total	22	37	33	1,747	1,669	1,969
Civilian	22	37	33	1,745	1,663	1,965
Military	-	-	-	2	6	9
Mumps	43	23	23	3,259	2,140	2,382
Pertussis	97	158	53	1,926	1,672	1,344
Rubella (German measles)	6	14	11	385	496	751
Syphilis (Primary & Secondary): Civilian	805	526	603	17,106	17,353	19,654
Military	-	2	5	110	118	240
Toxic Shock syndrome	7	6	N	233	258	N
Tuberculosis	478	446	502	14,077	13,746	15,149
Tularemia	10	5	7	89	115	156
Typhoid fever	5	6	13	180	223	257
Typhus fever, tick-borne (RMSF)	39	20	25	525	451	743
Rabies, animal	104	121	149	3,601	3,477	4,195

TABLE II. Notifiable diseases of low frequency, United States

	Cum 1986		Cum 1986
Anthrax	-	Leptospirosis	23
Botulism: Foodborne	6	Plague	4
Infant (N.Y. City 1, Utah 3, Calif. 2)	36	Poliomyelitis, Paralytic	-
Other	1	Psittacosis (Mo. 1, Calif. 1)	69
Brucellosis (Fla. 1, Tex. 1, Colo. 1, Calif. 1)	51	Rabies, human	-
Cholera	-	Tetanus (Maine 1, Ohio 1, Mo. 1, Calif. 2)	43
Congenital rubella syndrome	2	Trichinosis (Ohio 1)	21
Congenital syphilis, ages < 1 year	107	Typhus fever, flea-borne (endemic, murine) (N.Y. City 1, Tex. 1)	34
Diphtheria	-		

*There were no cases of internationally imported measles reported for this week.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending August 23, 1986 and August 24, 1985 (34th Week)

Reporting Area	AIDS	Aseptic Menin-gitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionel-losis	Leprosy
			Primary	Post-in-fectious			A	B	NA,NB	Unspeci-fied		
	Cum 1986	1986	Cum 1986	Cum 1986	Cum 1986	Cum 1985	1986	1986	1986	1986	1986	Cum 1986
UNITED STATES	8,113	545	622	68	563,987	568,921	375	524	54	57	15	175
NEW ENGLAND	355	25	17	3	14,152	15,040	10	41	-	5	-	6
Maine	13	2	-	-	590	727	-	2	-	-	-	-
N H	8	3	2	-	353	376	1	-	-	-	-	-
Vt	3	-	2	2	165	203	-	2	-	-	-	-
Mass	187	6	4	-	5,757	5,749	3	28	-	5	-	6
R I	21	7	-	-	1,125	1,193	2	2	-	-	-	-
Conn	123	7	9	1	6,162	6,792	4	7	-	-	-	-
MID ATLANTIC	3,112	31	68	6	95,430	82,762	9	27	1	13	9	12
Upstate N Y	296	4	26	4	11,291	11,064	3	13	1	-	-	1
N Y City	2,107	6	15	-	55,842	41,576	3	4	-	13	-	10
N J	492	21	10	-	12,446	12,467	3	10	-	-	9	-
Pa	217	U	17	2	15,851	17,655	U	U	U	U	U	1
E N CENTRAL	489	109	177	10	73,788	76,449	21	35	8	4	1	4
Ohio	100	38	56	2	19,317	19,586	9	14	3	-	-	-
Ind	48	10	39	3	7,876	7,704	2	4	-	2	-	-
Ill	238	25	38	4	20,880	20,385	5	5	2	1	-	3
Mich	78	36	34	1	22,947	21,425	5	12	3	1	1	1
Wis	25	-	10	-	2,768	7,349	-	-	-	-	-	-
W N CENTRAL	160	26	29	8	24,294	26,399	8	21	3	-	1	2
Minn	60	5	12	-	3,436	3,867	1	5	-	-	-	1
Iowa	11	3	9	-	2,444	2,855	1	4	1	-	-	-
Mo	56	14	-	-	12,282	12,717	3	10	-	-	-	-
N Dak	2	-	-	-	214	181	-	-	-	-	-	-
S Dak	1	-	7	-	492	491	-	-	-	-	-	-
Nebr	6	-	-	1	1,824	2,255	3	2	1	-	1	-
Kans	24	4	1	7	3,602	4,033	-	-	1	-	-	1
S ATLANTIC	1,120	69	82	23	147,114	146,239	32	98	13	4	1	2
Del	17	-	5	-	2,345	2,691	1	-	-	-	-	-
Md	123	11	25	1	17,555	19,010	2	17	2	-	-	-
D C	141	3	-	1	10,839	8,867	-	1	1	-	-	-
Va	106	2	27	1	11,942	12,201	-	4	1	1	1	1
W Va	6	-	12	-	1,451	1,544	-	1	-	-	-	-
N C	44	20	11	1	22,717	22,046	2	23	2	2	-	-
S C	24	-	-	-	12,807	14,025	3	9	-	-	-	-
Ga	170	8	-	1	24,802	29,631	3	10	1	-	-	-
Fla	489	25	2	18	42,656	35,124	21	33	6	1	-	1
E S CENTRAL	103	30	40	3	45,980	48,307	6	45	3	2	-	1
Ky	21	15	19	1	5,055	5,446	2	9	-	-	-	-
Tenn	53	4	3	1	17,753	18,471	1	16	1	2	-	-
Ala	19	11	17	1	13,156	14,761	3	20	2	-	-	1
Miss	10	-	1	-	10,016	9,629	-	-	-	-	-	-
W S CENTRAL	488	206	81	6	67,952	71,757	100	98	16	21	2	16
Ark	21	-	-	2	6,204	7,021	6	3	2	-	-	-
La	108	19	3	-	12,078	14,154	18	32	3	1	-	1
Okla	27	16	16	-	7,559	7,725	15	9	1	3	2	-
Tex	332	171	62	4	42,111	42,857	61	54	10	17	-	15
MOUNTAIN	203	3	22	1	16,507	17,747	24	16	3	1	-	11
Mont	4	-	-	1	468	492	1	-	-	-	-	-
Idaho	2	1	-	-	536	543	2	-	-	-	-	-
Wyo	4	-	2	-	362	420	-	-	-	-	-	-
Colo	96	1	3	-	4,193	5,230	1	6	1	1	-	8
N Mex	11	-	3	-	1,648	2,034	15	3	2	-	-	-
Ariz	50	-	8	-	5,364	5,205	-	-	-	-	-	5
Utah	12	-	5	-	713	778	2	2	-	-	-	1
Nev	24	1	1	-	3,223	3,045	3	5	-	-	-	2
PACIFIC	2,083	48	106	8	78,770	84,221	165	143	17	7	1	121
Wash	93	4	11	-	5,918	6,315	30	18	1	3	-	4
Oreg	44	-	-	-	3,273	4,144	29	19	4	-	-	-
Calif	1,906	36	92	8	66,897	70,673	105	106	12	4	1	84
Alaska	10	1	3	-	1,813	1,901	1	-	-	-	-	-
Hawaii	30	5	-	-	869	1,188	-	-	-	-	-	23
Guam	-	-	-	-	122	131	-	-	-	-	-	1
P R	76	4	4	-	1,539	2,262	3	9	-	2	-	7
V I	3	U	-	-	139	322	U	U	U	U	U	-
Pac. Trust Terr	-	-	-	-	285	574	5	-	-	1	-	33
Amer Samoa	-	-	-	-	30	-	-	-	-	-	-	2

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending August 23, 1986 and August 24, 1985 (34th Week)

Reporting Area	Malaria	Measles (Rubeola)					Meningococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported *		Total									
	Cum. 1986	1986	Cum. 1986	1986	Cum. 1986	Cum. 1985	Cum. 1986	1986	Cum. 1986	1986	Cum. 1986	Cum. 1985	1986	Cum. 1986	Cum. 1985
UNITED STATES	642	84	4,951	-	235	2,332	1,747	43	3,259	97	1,926	1,672	6	385	496
NEW ENGLAND	33	-	75	-	8	123	124	-	53	2	105	93	-	9	12
Maine	1	-	10	-	-	1	23	-	-	-	2	5	-	-	-
N.H.	2	-	39	-	-	-	6	-	13	1	50	31	-	1	2
Vt.	1	-	-	-	-	-	15	-	3	-	3	3	-	1	-
Mass.	17	-	23	-	6	116	29	-	9	-	28	25	-	4	6
R.I.	5	-	2	-	-	-	16	-	9	-	4	12	-	2	-
Conn.	7	-	1	-	2	7	35	-	19	1	18	7	-	1	4
MID. ATLANTIC	90	47	1,606	-	21	197	273	-	134	4	133	104	-	31	205
Upstate N.Y.	30	2	84	-	19	82	93	-	53	4	86	61	-	23	17
N.Y. City	25	45	815	-	2	60	57	-	5	-	3	9	-	5	164
N.J.	18	-	906	-	-	27	29	-	36	-	11	3	-	3	11
Pa.	17	U	22	U	-	28	94	U	40	U	33	31	U	-	13
E.N. CENTRAL	42	9	965	-	16	513	238	28	2,218	5	249	343	1	35	28
Ohio	12	-	-	-	10	54	94	1	100	5	108	32	-	1	-
Ind.	2	6	17	-	-	57	19	-	31	-	22	70	-	-	1
Ill.	14	-	631	-	3	289	66	27	1,644	-	28	36	-	24	12
Mich.	13	3	56	-	-	54	53	-	248	-	24	30	1	8	14
Wis.	1	-	261	-	3	59	6	-	195	-	67	175	-	2	1
W.N. CENTRAL	22	1	322	-	17	11	84	-	82	14	163	94	-	10	19
Minn.	5	-	45	-	4	6	17	-	1	-	43	28	-	-	2
Iowa	1	1	133	-	1	-	11	-	21	-	13	5	-	1	1
Mo.	10	-	25	-	6	2	28	-	15	-	12	24	-	1	7
N. Dak.	-	-	25	-	1	2	-	-	3	-	4	9	-	1	2
S. Dak.	-	-	-	-	-	-	4	-	1	-	14	1	-	-	-
Nebr.	4	-	-	-	-	-	9	-	-	-	1	4	-	-	-
Kans.	2	-	94	-	5	1	15	-	41	14	76	23	-	7	7
S. ATLANTIC	82	1	506	-	53	273	322	2	154	10	588	377	-	10	50
Del.	1	-	1	-	-	-	2	-	-	-	222	-	-	-	1
Md.	12	-	22	-	9	88	44	-	15	-	136	226	-	-	6
D.C.	1	-	-	-	2	8	4	-	-	-	-	-	-	-	-
Va.	21	-	35	-	24	25	53	2	34	-	30	8	-	-	2
W. Va.	4	-	2	-	-	33	3	-	38	3	23	2	-	-	9
N.C.	4	-	2	-	1	9	56	-	14	-	41	17	-	-	-
S.C.	6	-	274	-	-	3	29	-	12	-	13	1	-	-	3
Ga.	7	-	79	-	14	8	49	-	14	7	102	76	-	-	-
Fla.	26	1	90	-	3	99	82	-	27	-	21	47	-	10	29
E.S. CENTRAL	16	-	56	-	8	4	97	1	25	5	42	18	-	4	2
Ky.	4	-	-	-	6	2	24	-	6	-	5	3	-	4	2
Tenn.	1	-	54	-	1	1	35	1	16	3	15	6	-	-	-
Ala.	7	-	-	-	1	-	27	-	2	2	22	6	-	-	-
Miss.	4	-	2	-	-	1	11	-	1	-	-	3	-	-	-
W.S. CENTRAL	63	-	585	-	34	423	153	4	151	30	185	249	-	55	32
Ark.	-	-	276	-	2	-	22	-	7	3	11	12	-	-	1
La.	8	-	4	-	-	42	22	-	2	3	11	10	-	-	-
Okla.	9	-	37	-	2	1	21	N	N	-	89	120	-	-	1
Tex.	46	-	268	-	30	380	88	4	142	24	54	107	-	55	30
MOUNTAIN	26	1	298	-	26	526	88	-	203	5	189	114	-	21	5
Mont.	-	-	-	-	8	137	8	-	5	2	10	7	-	2	-
Idaho	1	-	1	-	-	135	3	-	6	-	33	7	-	-	1
Wyo.	-	-	-	-	-	-	2	-	-	-	1	-	-	-	-
Colo.	8	-	2	-	5	13	13	-	11	1	52	32	-	1	-
N. Mex.	4	-	32	-	7	5	8	N	N	-	17	11	-	-	2
Ariz.	8	-	252	-	6	238	19	-	167	-	46	27	-	2	1
Utah	2	1	8	-	-	-	9	-	10	2	27	30	-	13	-
Nev.	3	-	1	-	-	-	26	-	4	-	3	-	-	3	1
PACIFIC	268	5	541	-	52	262	368	8	239	22	292	290	5	210	143
Wash.	21	-	158	-	25	42	54	-	7	1	82	52	-	14	11
Oreg.	15	1	4	-	4	3	26	N	N	-	10	29	-	1	1
Calif.	231	3	358	-	22	197	275	8	209	21	190	168	5	191	82
Alaska	-	-	-	-	-	-	11	-	6	-	2	29	-	-	1
Hawaii	1	1	21	-	1	20	2	-	17	-	8	12	-	4	48
Guam	1	-	4	-	1	11	-	-	4	-	-	-	-	3	2
P.R.	4	-	33	-	-	50	2	2	23	1	13	10	2	60	25
V.I.	-	U	-	U	-	10	-	U	13	U	-	-	U	-	-
Pac. Trust Terr.	-	-	-	-	-	-	1	-	7	-	-	-	-	2	-
Amer. Samoa	-	-	2	-	-	-	-	-	4	-	-	-	-	1	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending August 23, 1986 and August 24, 1985 (34th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum 1986	Cum 1985	1986	Cum 1986	Cum 1985	Cum 1986	Cum 1986	Cum 1986	Cum 1986
UNITED STATES	17,106	17,353	7	14,077	13,746	89	180	525	3,601
NEW ENGLAND	308	352	-	451	467	1	11	9	3
Maine	15	9	-	32	35	-	-	-	-
N.H.	10	9	-	18	15	-	-	1	-
Vt.	7	5	-	13	4	-	-	-	-
Mass.	165	175	-	228	277	1	9	2	-
R.I.	16	12	-	35	35	-	-	3	1
Conn.	95	142	-	125	101	-	2	3	2
MID. ATLANTIC	2,403	2,293	-	2,883	2,525	1	14	20	412
Upstate N.Y.	104	161	-	416	438	-	2	11	54
N.Y. City	1,383	1,425	-	1,498	1,225	-	6	5	-
N.J.	433	447	-	497	349	1	5	1	15
Pa.	483	260	U	452	513	-	1	3	343
E.N. CENTRAL	666	719	3	1,667	1,681	-	13	54	90
Ohio	85	100	1	300	306	-	2	52	9
Ind.	78	65	-	178	206	-	2	-	14
Ill.	351	362	-	733	738	-	2	1	26
Mich.	117	148	2	378	325	-	5	1	20
Wis.	35	44	-	78	106	-	2	-	21
W.N. CENTRAL	147	152	-	402	373	27	7	35	584
Minn.	27	31	-	101	79	-	1	1	82
Iowa	8	17	-	33	43	1	-	1	130
Mo.	80	74	-	199	177	22	5	18	63
N. Dak.	3	2	-	6	6	-	-	1	130
S. Dak.	3	5	-	16	18	2	-	6	115
Nebr.	11	7	-	7	13	1	-	4	22
Kans.	17	16	-	40	37	1	1	4	42
S. ATLANTIC	5,384	5,119	1	2,710	2,797	8	24	246	863
Del.	35	25	-	27	27	-	1	1	-
Md.	291	309	-	209	256	2	6	28	432
D.C.	204	234	-	87	105	-	2	-	26
Va.	247	195	1	225	245	2	5	43	119
W. Va.	18	15	-	74	74	-	3	7	27
N.C.	334	437	-	372	368	1	3	87	7
S.C.	447	539	-	358	340	-	-	58	39
Ga.	995	888	-	408	454	3	-	21	132
Fla.	2,823	2,477	-	950	928	-	4	1	81
E.S. CENTRAL	1,151	1,282	-	1,206	1,200	8	2	63	236
Ky.	53	42	-	287	269	3	-	16	63
Tenn.	402	398	-	352	359	4	1	25	97
Ala.	366	422	-	380	364	1	-	14	74
Miss.	330	420	-	187	208	-	1	8	2
W.S. CENTRAL	3,425	3,986	2	1,814	1,681	39	15	89	526
Ark.	165	212	-	237	181	28	-	4	119
La.	570	687	-	315	221	1	1	-	15
Okla.	87	116	2	166	176	6	1	74	45
Tex.	2,603	2,971	-	1,096	1,103	4	13	11	347
MOUNTAIN	388	451	-	334	353	4	8	8	505
Mont.	6	3	-	20	46	1	1	4	173
Idaho	9	4	-	14	15	-	-	-	2
Wyo.	1	6	-	-	5	-	-	1	221
Colo.	96	112	-	28	43	-	1	3	15
N. Mex.	46	81	-	67	65	1	-	-	6
Ariz.	158	219	-	160	147	-	3	-	79
Utah	12	5	-	28	10	1	2	-	3
Nev.	60	21	-	17	22	1	1	-	6
PACIFIC	3,234	2,999	1	2,630	2,669	1	86	1	382
Wash.	99	80	-	123	150	-	3	-	5
Oreg.	75	60	-	92	85	-	-	-	-
Calif.	3,033	2,810	1	2,250	2,241	-	79	1	369
Alaska	2	2	-	37	68	1	1	-	8
Hawaii	25	47	-	128	125	-	3	-	-
Guam	1	2	-	34	31	-	-	-	-
P.R.	576	536	-	210	233	-	4	-	34
V.I.	-	1	U	1	1	-	-	-	-
Pac. Trust Terr.	170	80	-	44	38	-	42	-	-
Amer. Samoa	-	-	-	4	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending August 23, 1986 (34th Week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	597	397	126	45	10	17	40
Boston, Mass.	181	91	43	15	5	6	18
Bridgeport, Conn.	56	37	14	5	-	-	2
Cambridge, Mass.	21	15	4	2	-	-	1
Fall River, Mass.	22	17	5	-	-	-	-
Hartford, Conn.	56	35	12	6	-	3	3
Lowell, Mass.	23	16	6	1	-	-	2
Lynn, Mass.	10	10	-	-	-	-	-
New Bedford, Mass.	22	15	3	3	-	1	-
New Haven, Conn. §	42	28	9	4	1	-	2
Providence, R.I.	53	34	9	5	-	5	5
Somerville, Mass.	8	8	-	-	-	-	1
Springfield, Mass.	27	21	3	-	1	1	-
Waterbury, Conn.	33	25	3	3	2	-	2
Worcester, Mass.	83	45	15	1	1	1	4
MID ATLANTIC	2,611	1,658	549	250	73	78	102
Albany, N.Y.	55	32	14	6	2	1	2
Allentown, Pa.	41	31	10	-	-	-	-
Buffalo, N.Y.	112	80	22	6	4	-	5
Camden, N.J.	49	29	13	2	3	2	-
Elizabeth, N.J.	29	19	7	3	-	-	-
Erie, Pa †	36	20	12	-	1	3	1
Jersey City, N.J.	41	19	10	7	2	3	-
N.Y. City, N.Y.	1,339	817	276	174	33	39	51
Newark, N.J.	71	39	11	7	5	6	3
Paterson, N.J.	37	25	8	4	-	-	2
Philadelphia, Pa.	393	244	94	29	11	15	18
Pittsburgh, Pa †	82	39	16	3	2	2	3
Reading, Pa.	24	22	1	-	1	-	2
Rochester, N.Y.	105	78	19	3	3	2	7
Schenectady, N.Y.	32	27	2	1	1	1	1
Scranton, Pa †	22	17	3	-	2	-	-
Syracuse, N.Y.	87	63	17	2	2	3	2
Trenton, N.J.	28	17	7	3	-	1	1
Utica, N.Y.	19	17	1	-	1	-	1
Yonkers, N.Y.	29	23	6	-	-	-	3
E.N. CENTRAL	2,294	1,477	482	196	65	74	89
Akron, Ohio	43	27	9	6	1	-	-
Canton, Ohio	26	17	7	1	-	1	5
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	195	141	36	8	7	3	18
Cleveland, Ohio	147	98	38	8	2	5	2
Columbus, Ohio	127	80	30	10	6	1	1
Dayton, Ohio	98	65	20	8	2	1	3
Detroit, Mich.	282	148	85	40	10	5	9
Evansville, Ind.	41	27	10	1	1	2	2
Fort Wayne, Ind.	69	49	11	5	3	1	-
Gary, Ind.	10	5	2	2	-	1	-
Grand Rapids, Mich.	55	39	10	4	1	1	9
Indianapolis, Ind.	172	97	47	12	9	7	1
Madison, Wis.	55	35	8	6	4	2	6
Milwaukee, Wis.	129	85	23	14	-	7	7
Peoria, Ill.	53	35	8	4	3	3	4
Rockford, Ill.	32	24	3	4	-	1	1
South Bend, Ind.	51	36	8	2	3	2	3
Toledo, Ohio	117	73	27	8	3	6	2
Youngstown, Ohio	50	38	5	4	-	3	-
W.N. CENTRAL	671	449	147	38	24	15	24
Des Moines, Iowa	67	48	10	4	4	1	1
Duluth, Minn.	29	18	7	2	1	1	1
Kansas City, Kans.	48	31	13	3	1	-	2
Kansas City, Mo.	134	92	34	4	2	2	6
Lincoln, Nebr.	24	19	1	2	1	1	1
Minneapolis, Minn.	48	25	14	6	2	1	2
Omaha, Nebr.	69	44	16	2	5	2	1
St. Louis, Mo.	146	102	33	5	2	4	3
St. Paul, Minn.	55	37	9	5	2	2	2
Wichita, Kans.	51	33	10	3	4	1	5
S. ATLANTIC	1,230	733	272	141	35	45	43
Atlanta, Ga.	122	72	27	17	5	1	1
Baltimore, Md.	182	116	39	22	1	2	3
Charlotte, N.C.	89	53	17	8	5	6	2
Jacksonville, Fla.	102	61	20	15	3	3	7
Miami, Fla.	84	43	20	19	1	1	7
Norfolk, Va.	58	32	17	5	2	2	3
Richmond, Va.	79	39	18	11	3	8	7
Savannah, Ga.	36	24	6	3	2	1	1
St. Petersburg, Fla.	104	86	13	2	1	2	5
Tampa, Fla.	67	32	18	6	3	4	-
Washington, D.C.	283	162	89	32	5	15	7
Wilmington, Del.	24	11	8	1	4	-	-
E.S. CENTRAL	720	461	144	75	28	12	25
Birmingham, Ala.	116	71	23	15	4	3	2
Chattanooga, Tenn.	47	33	7	7	-	-	5
Knoxville, Tenn.	73	45	17	7	3	1	5
Louisville, Ky.	85	61	12	7	2	3	6
Memphis, Tenn.	159	97	39	13	10	-	3
Mobile, Ala.	78	57	13	6	1	1	-
Montgomery, Ala.	59	35	12	9	3	-	2
Nashville, Tenn.	103	62	21	11	5	4	2
W.S. CENTRAL	1,301	741	293	145	68	54	52
Austin, Tex.	53	34	8	6	2	3	6
Baton Rouge, La.	37	27	6	2	-	2	3
Corpus Christi, Tex.	20	13	3	2	2	-	1
Dallas, Tex.	192	96	51	21	12	12	4
El Paso, Tex.	53	27	16	3	4	3	3
Fort Worth, Tex.	88	50	14	11	6	7	4
Houston, Tex.	287	136	84	42	15	10	7
Little Rock, Ark.	100	54	25	12	4	5	5
New Orleans, La.	119	80	22	13	3	1	1
San Antonio, Tex.	185	113	38	17	12	5	10
Shreveport, La.	62	39	10	5	5	3	3
Tulsa, Okla.	105	72	16	11	3	3	5
MOUNTAIN	605	372	127	60	21	22	25
Albuquerque, N.Mex.	90	51	19	11	3	4	2
Colo. Springs, Colo.	38	26	7	5	-	-	7
Denver, Colo.	109	66	26	11	3	3	-
Las Vegas, Nev.	81	47	22	9	2	-	3
Ogden, Utah	19	14	1	2	1	1	2
Phoenix, Ariz.	126	71	30	9	8	7	4
Pueblo, Colo.	17	15	1	1	-	-	-
Salt Lake City, Utah	39	20	6	7	2	4	1
Tucson, Ariz.	87	62	15	5	2	3	6
PACIFIC	1,735	1,134	320	169	66	39	80
Berkeley, Calif.	24	19	5	-	-	-	4
Fresno, Calif.	64	42	11	7	1	3	4
Glendale, Calif.	21	19	1	1	-	-	1
Honolulu, Hawaii	77	50	14	6	6	1	4
Long Beach, Calif.	95	55	25	9	1	5	6
Los Angeles, Calif.	455	294	87	46	17	7	21
Oakland, Calif.	74	46	11	11	3	3	4
Pasadena, Calif.	31	22	6	1	-	2	1
Portland, Oreg.	120	78	24	13	4	1	-
Sacramento, Calif.	121	80	25	7	4	5	5
San Diego, Calif.	130	75	24	12	13	3	9
San Francisco, Calif.	158	101	21	32	1	1	5
San Jose, Calif.	149	94	35	10	7	3	9
Seattle, Wash.	131	96	19	7	6	3	1
Spokane, Wash.	48	36	5	4	3	-	2
Tacoma, Wash.	39	27	7	3	-	2	4
TOTAL	11,784††	7,422	2,460	1,117	390	356	480

* Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

** Pneumonia and influenza.

† Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

†† Total includes unknown ages.

§ Data not available. Figures are estimates based on average of past 4 weeks.

HTLV-III/LAV – Continued

4. All laboratory glassware, equipment, disposable materials, and wastes suspected or known to contain HTLV-III/LAV must be decontaminated, preferably in an autoclave, before washing, discarding, etc. Incineration of solid wastes may be used as an alternate method of disposal.
5. There is no evidence that laboratory clothing soiled with materials known or suspected to contain HTLV-III/LAV poses a transmission hazard, and the handling of such clothing is covered under BSL 2 practices. However, to be consistent with BSL 3 recommendations (*1*), when laboratory clothing becomes contaminated with HTLV-III/LAV preparations, it should be decontaminated before being laundered or discarded.
6. Work surfaces should be decontaminated at the end of each day on completion of procedures or when overtly contaminated. Many commonly used chemical disinfectants with such active ingredients as sodium hypochlorite, formaldehyde, glutaraldehyde, or phenols (*4,13-15*) can be used to decontaminate laboratory work surfaces; they can also be used to decontaminate some laboratory instruments, specific areas of contaminated laboratory clothing, and spills of infectious materials. Prompt decontamination of spills and other overt contamination should be standard practice.
7. The prudent and recommended approach to handling human serum known or suspected to contain HTLV-III/LAV is to use the same precautions that should be used routinely to prevent transmission of bloodborne infections, including hepatitis B (*16*). Available data on the effectiveness of heat to destroy HTLV-III/LAV suspected or known to be present in human serum are at variance because of variations in volume of serum, concentration of the virus, temperature, and duration of exposure to heat (*14,15,17*). Similarly, results of chemical analyses or antibody assays may vary when sera are heated before testing according to the analysis or assay being performed (*18-20*). However, there is agreement that testing heated serum for HTLV-III/LAV antibody by enzyme immunoassays often yields false-positive results (*21-23*).
8. No HTLV-III/LAV vaccine has been developed, and no drugs have been shown to be safe and effective for therapy. As part of an ongoing medical surveillance program for employees, all laboratory workers before being assigned to activities with a high potential for exposure should have a serum sample obtained and stored at -40 C (-40 F) for possible future testing. Subsequent serum samples should be obtained and stored in accordance with laboratory policy or following an inadvertent laboratory exposure involving materials described above. When indicated, these serum specimens should be tested by a qualified laboratory using currently recommended procedures for HTLV-III/LAV antibody. Furthermore, the physician requesting serologic testing of these serum specimens must first obtain informed consent from the laboratory worker and describe the confidentiality safeguards available to protect test results. The laboratory workers whose serum specimens are to be tested should understand how the test results are to be used, the implications of a positive or negative test result, and the limits, if any, of the confidentiality safeguards. An employee whose serum HTLV-III/LAV antibody test is reactive and whose subsequent tests and evaluation confirm the presence of HTLV-III/LAV infection should be counseled to follow the Public Health Service recommendations for preventing transmission (*24,25*).
9. In addition to HTLV-III/LAV, other primary, as well as opportunistic, pathogenic agents may be present in the body fluids and tissues of persons who are antibody positive or have AIDS-related complex or AIDS. Laboratory workers should follow accepted biosafety practices to ensure maximum protection against inadvertent laboratory infection with agents other than HTLV-III/LAV that may also be present in clinical specimens.

Reported by Div of Safety, National Institute of Allergy and Infectious Diseases, National Cancer Institute, National Institutes of Health; AIDS Program, Hospital Infections Program, Center for Infectious Diseases, Laboratory Program Office, Office of Biosafety, Office of the Director, CDC.

HTLV-III/LAV – Continued

ADDENDUM

CDC cautionary notice for all human serum samples used as controls or reagents:

WARNING: Because no test method can offer complete assurance that laboratory specimens do not contain HTLV-III/LAV, hepatitis B virus, or other infectious agents, this specimen(s) should be handled at the BSL 2 as recommended for any potentially infectious human serum or blood specimen in the CDC-NIH manual, *Biosafety in Microbiological and Biomedical Laboratories*, 1984, pages 11-3.

One or more of the following statements should be included with the above warning statement:

- This specimen is negative for hepatitis B surface antigen (HBsAg).
- This specimen is negative for antibody to HTLV-III/LAV.
- This specimen is positive for hepatitis B surface antigen (HBsAg).
- This specimen is positive for antibody to HTLV-III/LAV.
- This specimen has NOT been tested for hepatitis B surface antigen (HBsAg).
- This specimen has NOT been tested for antibody to HTLV-III/LAV.
- This specimen has been heated at 56 C (133 F) for 30 minutes (which will not inactivate HBsAg but will inactivate HTLV-III/LAV).

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Thrombotic Thrombocytopenic Purpura Associated with *Escherichia coli* O157:H7 — Washington

Since *Escherichia coli* was first associated with bloody diarrhea in 1982 (*1*), several well-documented cases of hemolytic-uremic syndrome (HUS) related to *E. coli* O157:H7 have been described among children and adults (*2,3*). Patients with thrombotic thrombocytopenic purpura (TTP) have clinical and pathologic features similar to patients with HUS. In contrast to HUS, however, gastrointestinal infections have not been strongly implicated in the pathogenesis of TTP (*4,5*). A patient who recently died in Seattle with a clinical and pathologic diagnosis of TTP had bloody diarrhea associated with *E. coli* O157:H7 infection for 1 week before the onset of her other symptoms. This patient's clinical course suggested that *E. coli* O157:H7 infection may have been related to the development of TTP.

In February 1986, a 53-year-old, previously healthy woman was admitted to a Seattle hospital with severe neurologic abnormalities, microangiopathic hemolytic anemia, thrombocytopenia, and renal failure. One week before admission, she had developed bloody diarrhea. There was no past history of bowel disease or travel. The patient had not eaten hamburger or shellfish within the preceding 2 weeks, and in the several days before onset of diarrhea, she had eaten the same foods as her husband who did not become ill. Three days after onset of diarrhea, a hematocrit was normal, and a stool examination for ova or parasites was negative. Cephalexin and metronidazole were prescribed. Her diarrhea continued, and hematuria developed. The day before admission, she became extremely lethargic. Following a generalized seizure while being evaluated in an emergency room, she was admitted.

On admission, the patient was intubated and comatose. Rectal temperature was 35.6 C (96.1 F); blood pressure, 180/100 mm Hg supine; heart rate, 66 beats per minute; and respiratory rate, 10/minute on the ventilator. Pupils were pinpoint and minimally reactive. Cranial nerve functions were intact, and the patient withdrew her extremities to noxious stimuli. The abdomen was soft without guarding and bowel sounds were hypoactive. Stool was guaiac positive. Laboratory data included a hematocrit of 41%, a leukocyte count of 29,200/mm^3 with a left shift, and a platelet count of 38,000/mm^3. A blood smear showed schistocytes, helmet cells, burr cells, and target cells consistent with a microangiopathic hemolytic anemia. The serum urea nitrogen was 48 mg/dl, and creatinine was 3.3 mg/dl. PT and PTT were normal, and the thrombin time was 22 seconds. Fibrinogen was 454 mg/dl, and fibrin degradation products were less than 40 μg/ml but greater than 10 μg/ml. A culture from a rectal swab obtained the day of admission yielded *E. coli* O157:H7.

TTP – Continued

TTP was diagnosed; plasmapheresis was begun after treatment with fresh frozen plasma, and she received corticosteroids, dipyridamole, and aspirin. Her neurologic status deteriorated rapidly during the first 24 hours after admission, and a computerized tomographic scan of her head showed diffuse cerebral edema. Despite aggressive therapy for increased intracranial pressure, she lost all cranial nerve and motor function and died 48 hours after admission. An autopsy revealed diffuse fibrin microthrombi in multiple organs, including kidneys, pituitary, and myocardium. Transtentorial herniation appeared to be the cause of death. Cultures of food samples from the patient's refrigerator yielded no pathogens.

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Editorial Note: The syndromes of TTP and HUS share many features, including thrombocytopenia, microangiopathic hemolytic anemia, and renal disease (*4,6*). Neurologic manifestations and fever complete the pentad of symptoms characteristic of TTP; these symptoms can also be present in HUS. Diarrhea, frequently bloody, is usually present a few days before the onset of HUS. Although diarrhea is not often described before onset of TTP, abdominal pain has been noted in 13%-14% of patients (*4,7*), and major gastrointestinal hemorrhage can occur (*7*).

Verotoxin-producing *E. coli*, including *E. coli* O157:H7, has been associated with HUS (*2,3,8*). It has been postulated that one or more verotoxins may be involved in HUS, but the mechanism remains unknown. A rise in verotoxin-neutralizing antibody has been detected in paired sera from patients with HUS (*2*). Drugs, toxins, infectious agents, immunologic disease, and pregnancy have all been proposed as etiologic agents for TTP (*4*). The isolation of *E. coli* O157:H7 from stool of the patient described here with bloody diarrhea and TTP suggest infection with this agent may represent another feature common to both TTP and HUS. *E. coli* O157:H7 can cause nonbloody diarrhea and asymptomatic infection (*8,9*). It is not known whether *E. coli* O157:H7 may be associated with HUS or TTP without antecedent bloody diarrhea.

Recovery of *E. coli* O157:H7 is optimal when specimens are obtained within 6 days after onset of diarrhea (*10*). Laboratories can screen for *E. coli* O157:H7 using media containing sorbitol, since *E. coli* O157:H7 does not ferment sorbitol rapidly, whereas 93% of other *E. coli* do (*11*). Isolates that do not ferment sorbitol within 24 hours can be sent to an appropriate reference laboratory for serotyping. However, since *E. coli* other than serotype O157:H7 have also been associated with HUS (*2*), and these *E. coli* may ferment sorbitol, a thorough investigation requires screening of stool specimens by a reference laboratory. An aliquot of stool can be frozen at -70 C (-94 F) as soon as the diagnosis of HUS or TTP is considered, pending the investigation of other causes. CDC's Enteric Diseases Branch is interested in obtaining frozen stool specimens from patients with HUS or TTP to analyze for verotoxin-producing *E. coli*; arrangements can be made through state epidemiologists or laboratory directors.

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Aseptic Meningitis Among Kidney Transplant Recipients Receiving a Newly Marketed Murine Monoclonal Antibody Preparation

During July 1986, four patients being treated for kidney allograft rejection in two hospitals developed headache, fever, and photophobia (three patients) or fever alone (one patient) during administration of a recently marketed murine monoclonal antibody preparation, Orthoclone OKT3* (Ortho Pharmaceutical Corporation, Raritan, New Jersey). All patients had onset of symptoms within 72 hours of beginning their course of treatment with the product. OKT3 had been administered daily as 5 mg OKT3 mixed with 50 ml normal saline and infused intravenously over a 1-hour period. Lumbar puncture results on all four patients suggested aseptic meningitis; they revealed cerebrospinal fluid (CSF) pleocytosis, elevated CSF protein, and normal CSF glucose. Initial CSF white blood cell counts ranged from 18 to 445/mm^3, with 40%-89% polymorphonuclear neutrophils. All bacterial cultures of CSF and blood were sterile. Viral cultures of throat and stool were done in two patients and CSF in one patient; all have remained negative. Symptoms in all four patients resolved within 5 days with no evidence of neurologic sequelae. Two of the patients received neither antibiotic nor antiviral therapy.

Four other patients who were treated for kidney allograft rejection during July 1986 at the same hospitals but did not receive OKT3 had no signs or symptoms suggesting possible aseptic meningitis. All eight patients received other drug and therapeutic interventions commonly given to treat kidney allograft rejection.

Investigations of the reactions are currently under way by hospital, state, Food and Drug Administration (FDA), and company officials.

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Editorial Note: OKT3 has been reported effective in the treatment of acute kidney allograft rejection (*1*). Commonly reported adverse reactions have included fever, chills, dyspnea, chest pain and tightness, wheezing, nausea and vomiting, and tremor (*1*). In one study, fever was reported in up to 73% of recipients. Reactions were noted 45-60 minutes after the first injection; second injections were associated with fewer reactions, and symptoms were uncommon in subsequent injections (*1*). The incidence of aseptic meningitis during treatment with OKT3 is not known. Sixteen (2%) of 977 patients who received OKT3 during premarket trials had a lumbar puncture. Complete information was available for only seven of the 16 pa-

*Use of trade names is for identification only and does not constitute endorsement by the Public Health Service, U.S. Department of Health and Human Services.

Aseptic Meningitis — Continued

tients. In six of the seven patients, CSF cell count, CSF protein, and CSF glucose were consistent with aseptic meningitis; all bacterial, fungal, and viral cultures were negative. The extent and nature of meningeal pathology is unknown. Micrologic evaluation is incomplete for all patients but suggests an immunologically mediated reaction as one possible etiology. No clinical sequelae directly attributable to the reactions have been identified.

To assess the occurrence of aseptic meningitis and to establish incidence rates in patients receiving OKT3, the FDA and Ortho Pharmaceuticals have instituted a postmarket clinical evaluation of the product. The company has provided additional information about this evaluation to potential users of their product. Other physicians interested in this information should contact Ortho Pharmaceuticals, telephone (800) 433-1015; in New Jersey, (201) 218-6410.

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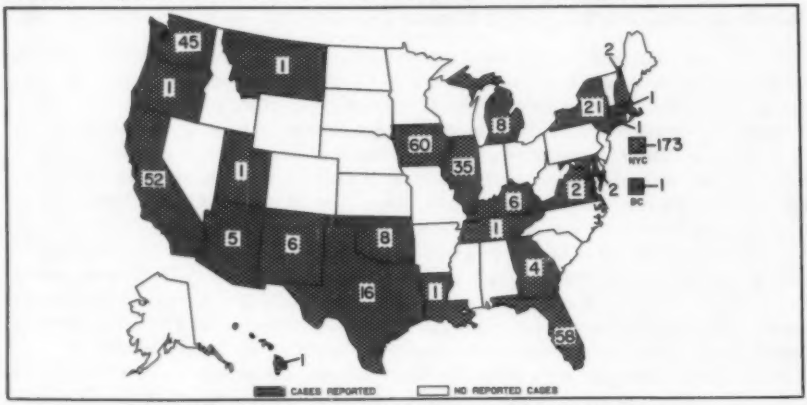
FIGURE I. Reported measles cases — United States, weeks 30-33, 1986



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